

CLAIMS:

1. A wavelength tunable cavity, comprising:

a first cavity end mirror (10) serving to at least partially reflect an incident beam (80) of electromagnetic radiation towards a second cavity end mirror (30),

5 said at least one second cavity end mirror (30) serving to at least partially reflect an incident beam (80) of electromagnetic radiation back towards said first cavity end mirror (10), both mirrors (10, 30) providing the formation of resonance modes of said electromagnetic radiation within said cavity, wherein an optical path of said beam (80) within said cavity is defined in length by said first (10) and second
10 cavity end mirror (30),

a grating (20), which is arranged within said optical path of said beam (80) being reflected by said first cavity end mirror (10), said grating (20) being adapted for tuning the wavelength of said beam (80),

15 wherein said at least one second cavity end mirror (30) is arranged being rotatable about an axis (40) by at least 360 degrees for providing a continuous movement (41) of said second cavity end mirror (30) along a circle path with respect to said grating (20),

20 said circle path of said second cavity end mirror (30) comprising at least a portion (32) being arranged to intersect with said beam (80), which is redirected by said grating (20).

2. A cavity according to claim 1, further comprising a laser source, which comprises a gain medium emitting said beam (80) of electromagnetic radiation through a front surface along said optical path towards said grating (20), and said first cavity end mirror (10) as a back facet.

25 3. A cavity according to claims 1 or 2,

wherein said first (10) and second cavity end mirrors (30) and said grating (20) are arranged as a Littmann-cavity comprising a pivot point (100), said pivot point

(100) having a position within said axis (40) of rotation of said second cavity end mirror (30).

4. A cavity according to any one of claims 1 to 3, wherein said axis (40) of rotation of said second cavity end mirror (30) is arranged being substantially orthogonal to a plane (15) defined by said first (10) and second cavity end mirror (30) and said grating (20).

5. A wavelength tunable cavity, comprising:

a first cavity end mirror serving to at least partially reflect an incident beam of electromagnetic radiation towards a second cavity end mirror,

10 at least one said second cavity end mirror serving to at least partially reflect an incident beam of electromagnetic radiation towards said first cavity end mirror, both mirrors providing the formation of resonance modes of said electromagnetic radiation within said cavity, wherein an optical path of said beam within said cavity is defined in length by said first and second cavity end mirror,

15 at least one grating serving to redirect said optical path of said beam being reflected by said first cavity end mirror towards said second cavity end mirror, being adapted for tuning the wavelength of said beam,

wherein said at least one grating is arranged being rotatable along a circle path about an axis by at least 360 degrees for providing a continuous movement with respect to said first and second cavity end mirror,

20 said circle path of said at least one grating comprising at least a portion being arranged to intersect with said beam, which is reflected by said first cavity end mirror.

6. A cavity according to claim 5, further comprising a laser source, which comprises

25 a gain medium emitting said beam of electromagnetic radiation through a front surface along said optical path towards said grating, and

said first cavity end mirror as a back facet.

7. A cavity according to claim 5 or any one of the above claims, comprising a first (20) and at least one second grating (20'), both gratings (20, 20') being rotatable about the same axis by at least 360 degrees, the first grating (20) having a first grating constant (141) and the second grating (20') having a second grating constant (142), which is different from said first grating constant (141), both gratings (20, 20') serving to redirect said beam (80) being reflected by said first cavity end mirror (10) towards said second cavity end mirror (30).
8. A cavity according to claim 5 or any one of the above claims, comprising a multiple of gratings (20, 20') each being mounted to a rotatable support (36), and each of said gratings (20, 20') comprising:
- the same axis (40) of rotation, and
- the same circle path comprising the same portion being arranged to intersect with said beam (80), which is reflected by said first cavity end mirror (10).
9. A wavelength tunable cavity, comprising:
- a first cavity end mirror serving to at least partially reflect an incident beam of electromagnetic radiation towards a second cavity end mirror,
- at least one said second cavity end mirror serving to at least partially reflect an incident beam of electromagnetic radiation towards said first cavity end mirror, both mirrors providing the formation of resonance modes of said electromagnetic radiation within said cavity, wherein an optical path of said beam within said cavity is defined in length by said first and second cavity end mirror,
- a grating serving to redirect said optical path of said beam being reflected by said first cavity end mirror towards said second cavity end mirror, said grating being adapted for tuning the wavelength of said beam by means of diffraction,
- a redirection mirror serving to redirect said optical path of said beam, which is redirected from said grating towards said second cavity end mirror,
- wherein said redirection mirror is arranged being rotatable along a circle path about an axis by at least 360 degrees for providing a continuous movement with

respect to said grating and said second cavity end mirror,

said circle path of said redirection mirror comprising at least a portion being arranged to intersect with said beam, which is redirected by said grating.

10. A wavelength tunable cavity, comprising:

5 a first cavity end mirror serving to at least partially reflect an incident beam of electromagnetic radiation towards at least one second cavity end mirror,

said at least one second cavity end mirror serving to at least partially reflect an incident beam of electromagnetic radiation towards said first cavity end mirror, both mirrors providing the formation of resonance modes of said electromagnetic radiation within said cavity, wherein an optical path of said beam within said cavity is defined in length by said first and second cavity end mirror,

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a grating, which is arranged within said optical path of said beam being reflected by said first cavity end mirror, said grating being adapted for tuning the wavelength of said beam,

15 wherein said second cavity end mirror and said grating are both arranged being rotatable along a circle path about an axis by at least 360 degrees for providing a continuous movement with respect to said grating,

said circle path of said grating comprising at least a portion being arranged to intersect with said beam, which is reflected by said first cavity end mirror.

20 11. A cavity according to claim 10, further comprising a laser source, which comprises:

a gain medium emitting said beam of electromagnetic radiation through a front surface along said optical path towards said grating, and

said first cavity end mirror as a back facet.

25 12. A method comprising the steps of:

at least partially reflecting an incident beam (80) of electromagnetic radiation from

a first cavity end mirror (10) towards a second cavity end mirror (30),

at least partially reflecting an incident beam (80) of electromagnetic radiation from said at least one second cavity end mirror (30) back towards said first cavity end mirror (10), both mirrors (10, 30) providing the formation of resonance modes of said electromagnetic radiation within said cavity, wherein an optical path of said beam (80) within said cavity is defined in length by said first (10) and second cavity end mirror (30),

tuning the wavelength of said beam (80) by using a grating (20), which is arranged within said optical path of said beam (80) being reflected by said first cavity end mirror (10),

rotating said at least one second cavity end mirror (30) about an axis (40) by at least 360 degrees for providing a continuous movement (41) of said second cavity end mirror (30) along a circle path with respect to said grating (20), said circle path of said second cavity end mirror (30) comprising at least a portion (32) being arranged to intersect with said beam (80), which is redirected by said grating (20).